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PATHOPHYSIOLOGICAL ASPECTS OF NOCTURIA IN A DANISH POPULATION OF MEN AND WOMEN AGED 60-80 YEARS.

Hypothesis / aims of study
The aims were firstly to apply ICS Guidelines [1] and categorize men and women with nocturia ≥2 per night (nocturics) in pathophysiological groups based on selected LUTS, clinical examination, frequency volume charts, and urodynamic observations, and secondly to categorize the most likely pathophysiologically causes of nocturia.

Study design, materials and methods
Participants in this study were randomly selected among respondents in a population study of 4000 individuals aged 60, 65, 70, 75 and 80 years living in Copenhagen County. Nocturia was assessed in the population study using the new and validated Nocturia, Nocturnal Enuresis, and Sleep-interruption Questionnaire (NNES-Q)[2]. Nocturic (≥2 voids) or control (< 1 void) status was assessed by a 3-day frequency volume chart (FVC) which recorded volumes as well as time of each micturition. Furthermore, medical histories were obtained and participants were specifically interviewed regarding LUTS by one of the authors, and physical examination was performed. Nocturia pathophysiology was divided in four groups according to FVC variables: nocturnal polyuria, low bladder capacity, nocturnal polyuria and low bladder capacity in combination, and polyuria. Spontaneous flow rate and subsequently post void residual urine was determined in nocturics and controls, and urodynamic examination performed in nocturics.

Results
Of 1111 eligible individuals, a total of 75 nocturics and 75 controls (13.5%) were included. Median age was 71 years (range: 60-82) in nocturics and 66 years (range: 60-82) in controls. More nocturics vs. controls had daytime frequency, urgency, and urge incontinence; however, the difference was not significant in men. Nocturnal polyuria was the only pathophysiological factor that differed significantly in prevalence between nocturics and controls. Urodynamic examinations demonstrated that detrusor overactivity incontinence (DOI) (26%) dominated the observations in women, whereas detrusor overactivity (DO) (64%) dominated in men.

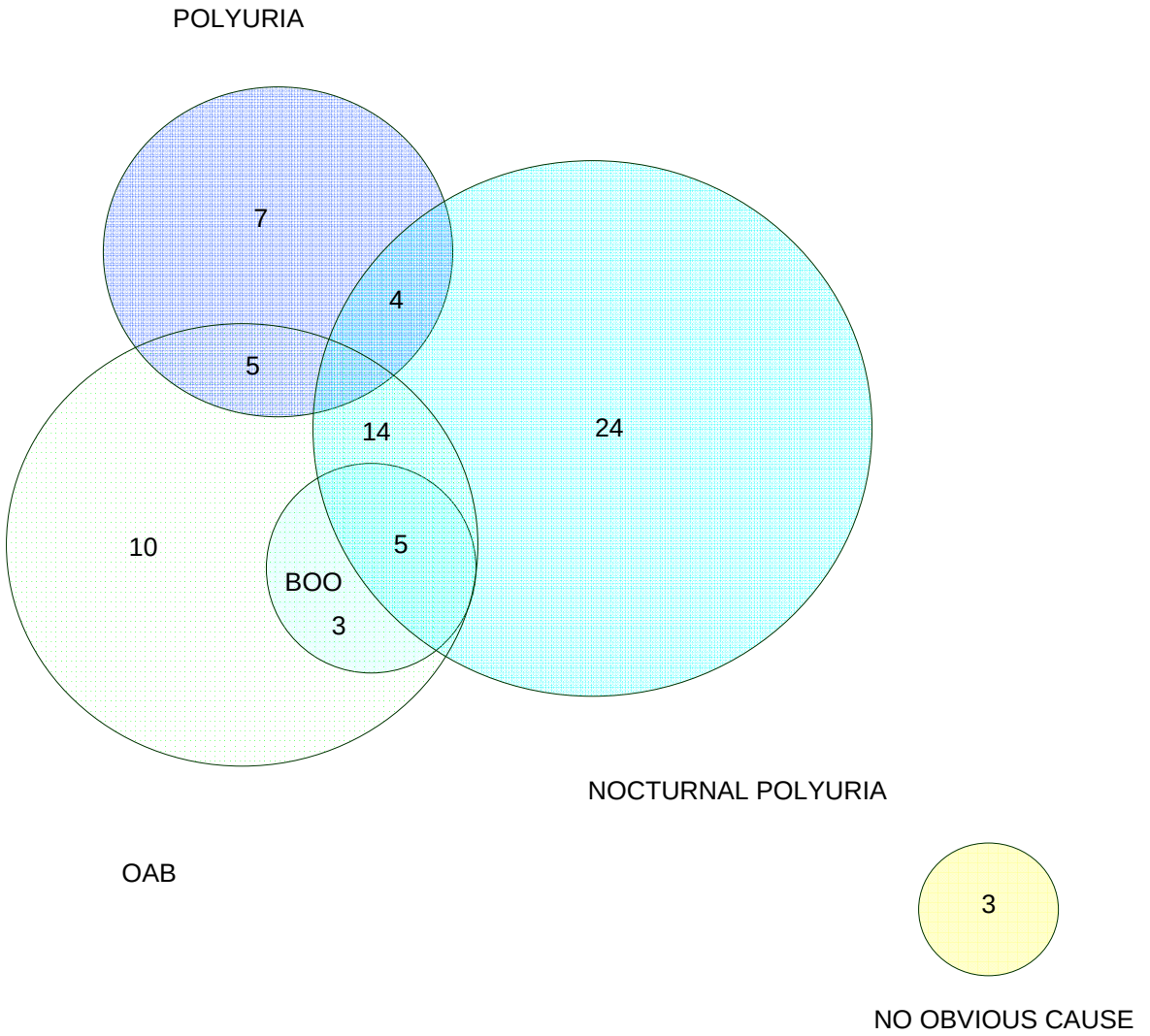

Figure 1. Assessment of the pathophysiological causes of nocturia, including bladder outlet obstruction (BOO) in the individual (n=75).

Interpretation of results

LUTS such as urgency in women and symptoms suggestive of BOO in men were the major complaints expressed by nocturics. FVCs demonstrated that 55% of nocturics had nocturnal polyuria which was significantly more than controls. DOI was the major urodynamic observation in nocturic women, and DO in men. Based on the entire work-up we were able to categorize the most likely causes of nocturia.

Concluding message

In patients with nocturia we were able to pathophysiologically categorize 84% on the basis of FVC variables alone. When symptoms and urodynamic examination were added to the assessment, we were able to categorize the most likely cause of nocturia in 96% of the participants (Figure 1).

References

1. BJU Int. 2002 Dec;90 Suppl 3:11-5.
2**.** Eur Urol 2006 Apr;49(4):710-9. Epub 2006 Jan 13.

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